Rule DAS310:   Seeking probably was caused by shared DASD conflicts

Finding: CPExpert believes that the seeking performance problems were caused by shared DASD conflicts.

Impact: This finding is used to assess whether sharing DASD between systems or MVS images caused performance problems.

Logic flow: The following rules cause this rule to be invoked:
        DAS100: Volume with the worst overall performance
        DAS110: Seeking was the major cause of I/O response delay
        DAS300: Shared DASD caused performance problems

Discussion: If CPExpert determines that seeking was the major cause of I/O response delay and if the device is shared, CPExpert analyzes other systems in the performance data base which share the volume.

Seek delays can occur if the arm of the device has been moved by System B when System A attempts to access a cylinder. In this case, the DASD I/O operation from System A must move the arm to the desired cylinder, as a SEEK operation.

CPExpert computes the time required to perform SEEKs on System A. If the computed SEEK time is a major cause of performance problems, CPExpert analyzes the data from System B to determine whether System B generates a large number of I/O operations to the device.

If System B does **not** generate a relatively large number of I/O operations to the device, CPExpert concludes that there is **not** a conflict. If System B **does** generate a relatively large number of I/O operations to the device, CPExpert concludes that there **is** a conflict caused by sharing the device.

- There is little doubt about the validity of the first conclusion: if System B does not use the device, System B clearly cannot cause seek problems for System A.

- The second conclusion is based on an assumption: a large number of I/O operations from System B to the shared device will cause the seek problems for System A.

To be absolutely correct, CPExpert should process the configuration definitions for System B, process System B's channel and device information, and compute seek information for System B. CPExpert could

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then determine whether System B also experienced a high seek rate for the device. If both System A and System B experienced a high seek rate, CPExpert could be absolutely sure that there was a shared DASD conflict. This approach would unnecessarily use system resources and would be cumbersome to implement.

Consequently, CPExpert makes the assumption that I/O operations to the device are random between System A and System B. CPExpert thus can conclude that if System A experiences a high seek rate and System B significantly uses the device (exhibited by a high I/O rate), then System B must also experience a high seek rate. To assume otherwise would require that I/O from System B be coordinated with the I/O from System A, such that System B does not experience seeking similar to System A.

Since both System A experiences a high seek rate and System B experience a high I/O rate, CPExpert concludes that there is a conflict caused by the shared DASD.

Suggestion: You should use the information displayed by Rule DAS300 to assess the significance of the performance problems caused by shared DASD. Please refer to the suggestions associated with Rule DAS300 for alternative actions you may consider.